



# The Road to Virtualisation - Gartner's view

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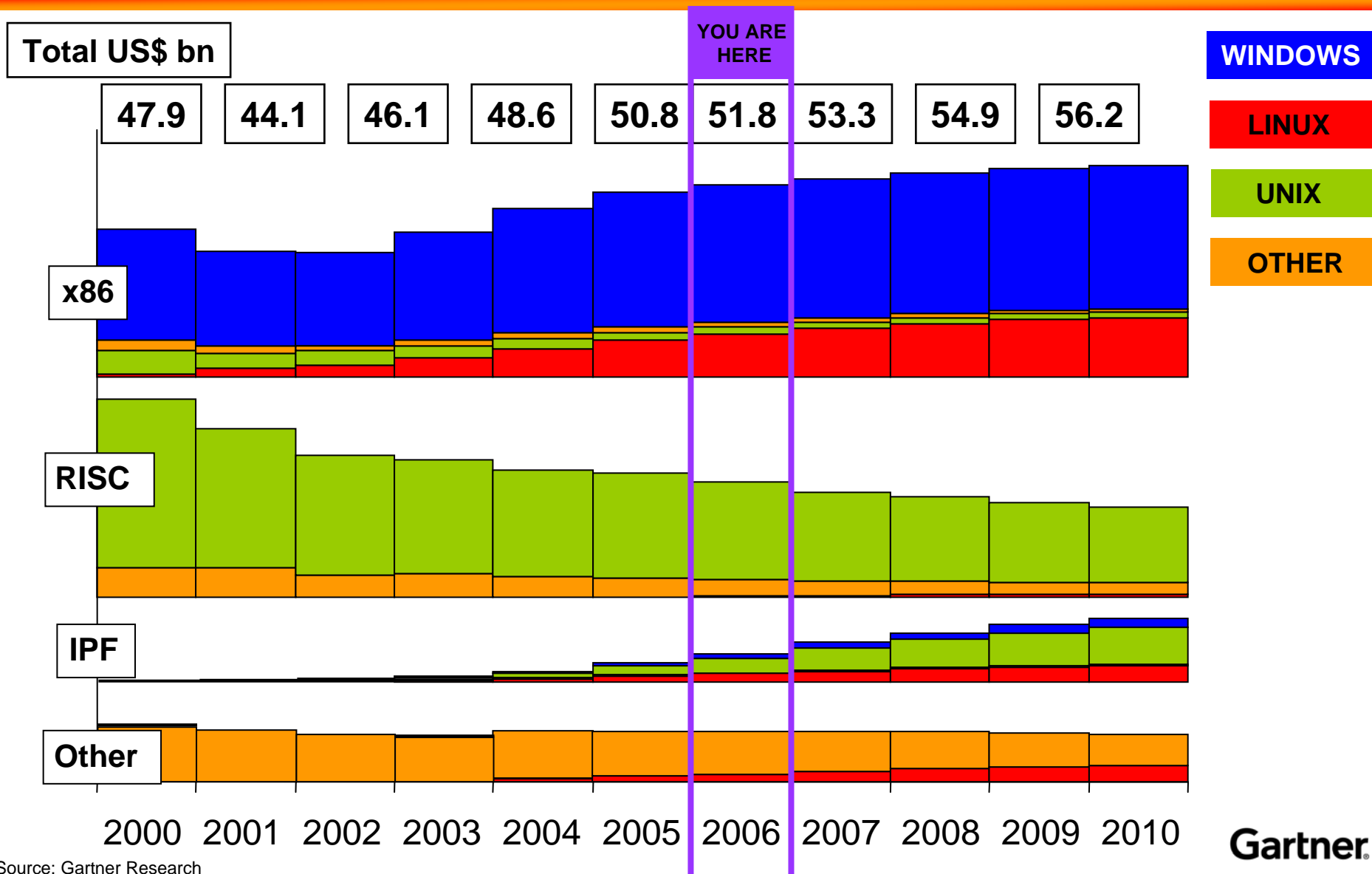
# Agenda

- **How will the server marketplace evolve and what major discontinuities will impact or accelerate those trends?**
- **How will users exploit the advent of server and storage virtualisation to further consolidation strategies?**
- **How does Gartner assess HP as a provider of IT infrastructure and related services?**

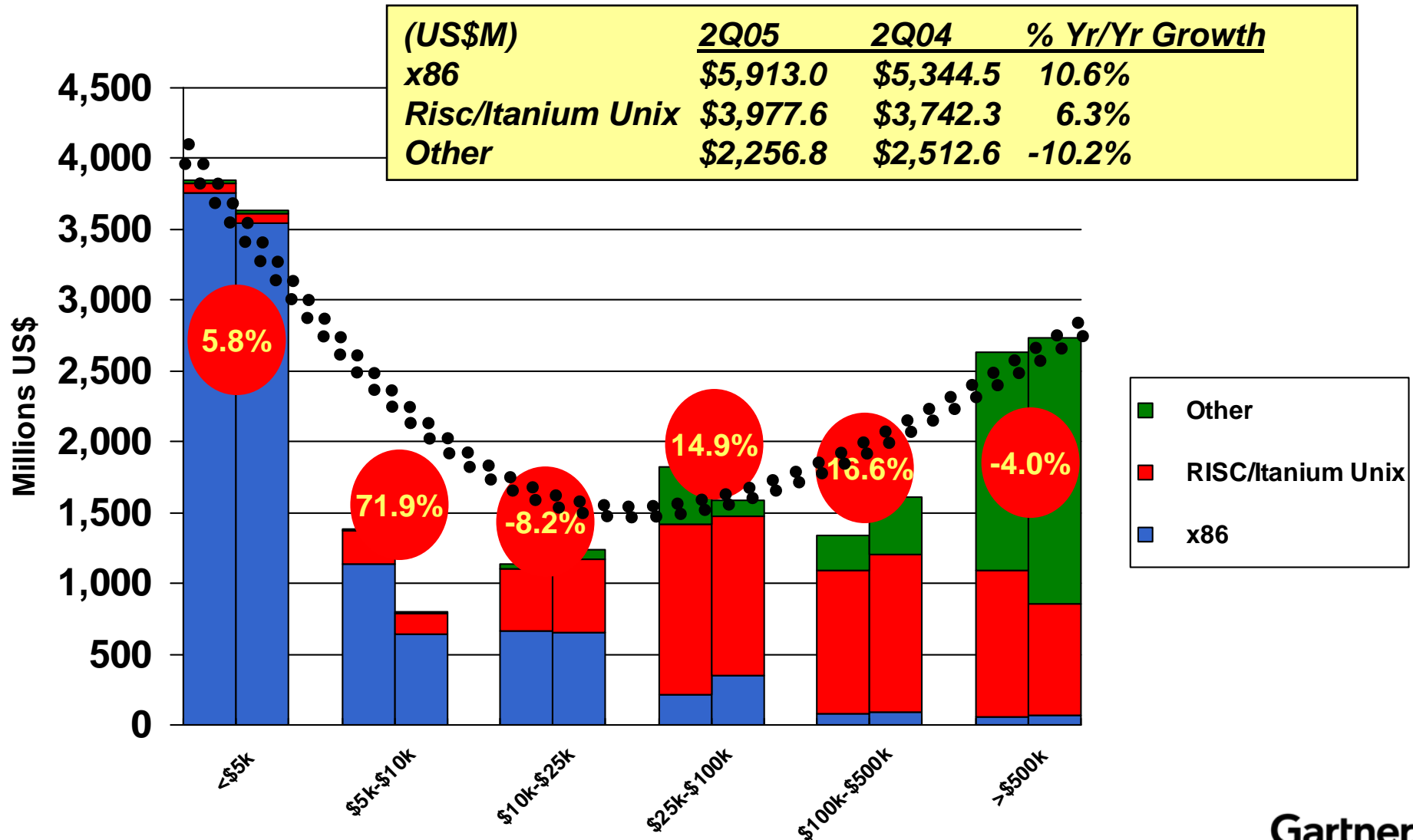
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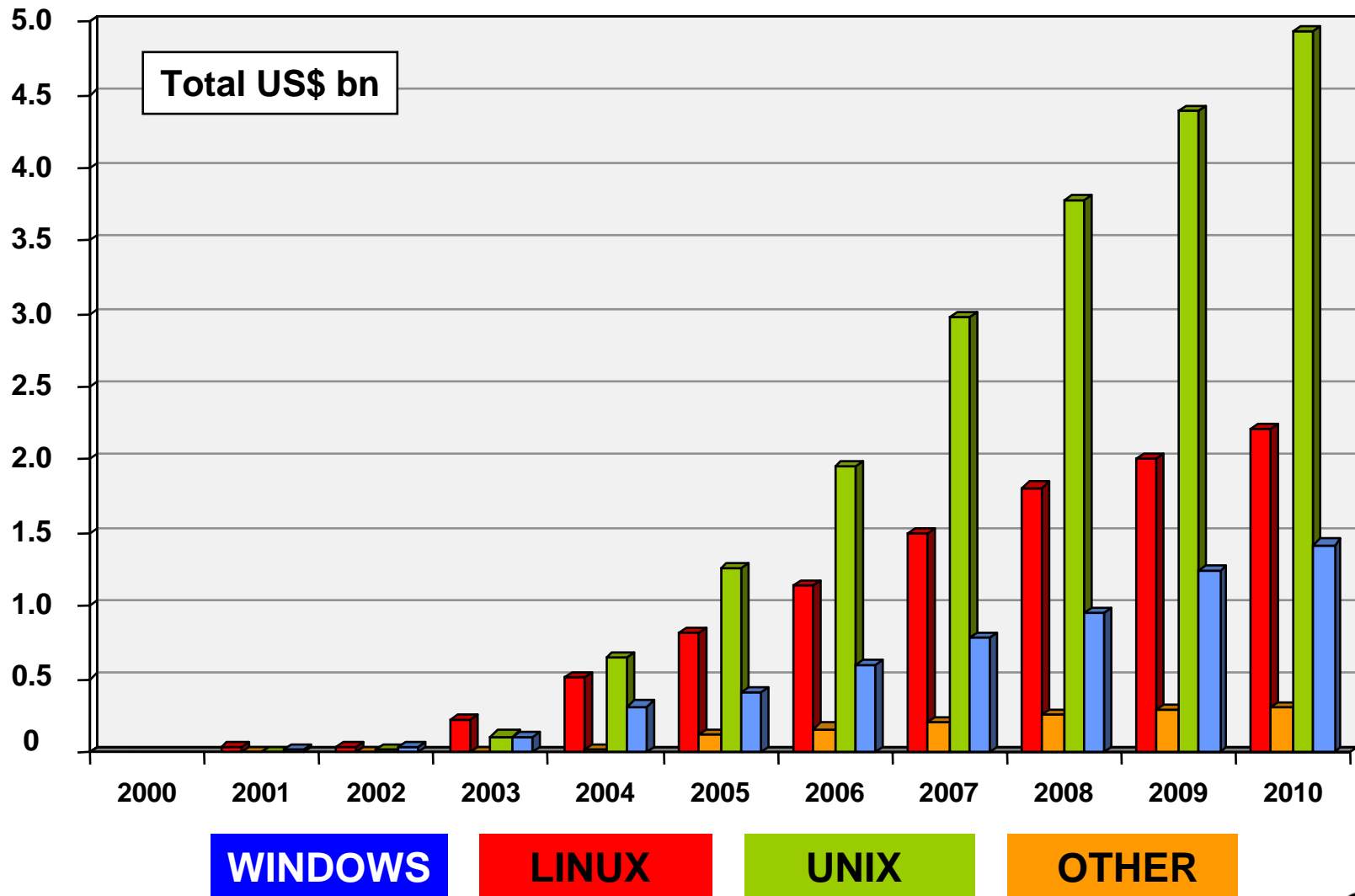
# Steady Growth for x86 Server Markets Through the Decade



# Worldwide Server Price Bands – Polarising Effect Favours Consolidation Servers

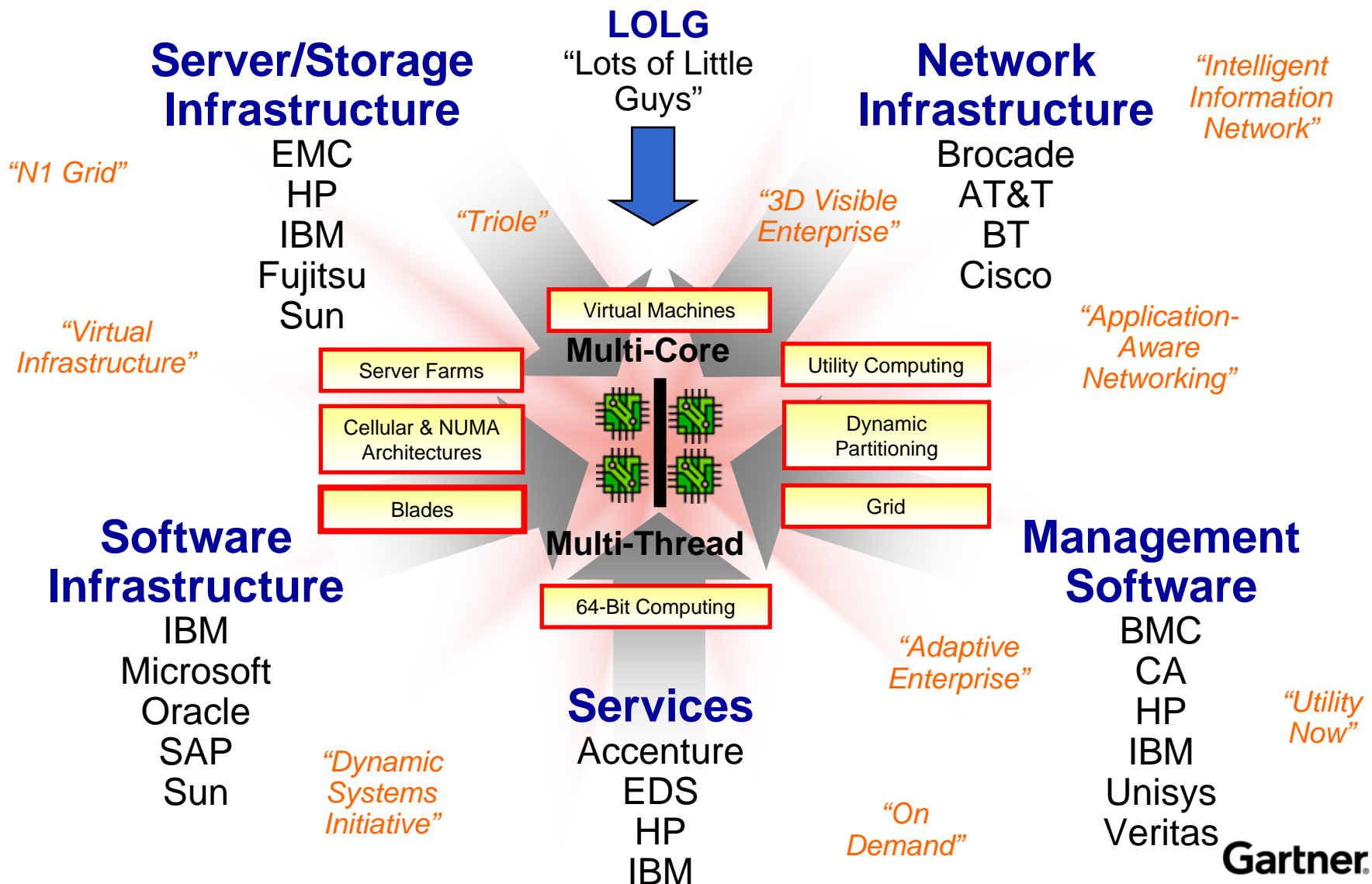


# Itanium Spending Gradually Favours Unix Oriented Markets





# Real Time Infrastructure: The Next Great IT Battlefield



# Dual-Core/Multi-Core/Multi-Threaded Architectural Confusion

Dual/multi-core and multi-threaded architectures increase performance without corresponding increases to power consumption and heat generation.



## HOWEVER...

All dual/multi-core architectures are not equal.

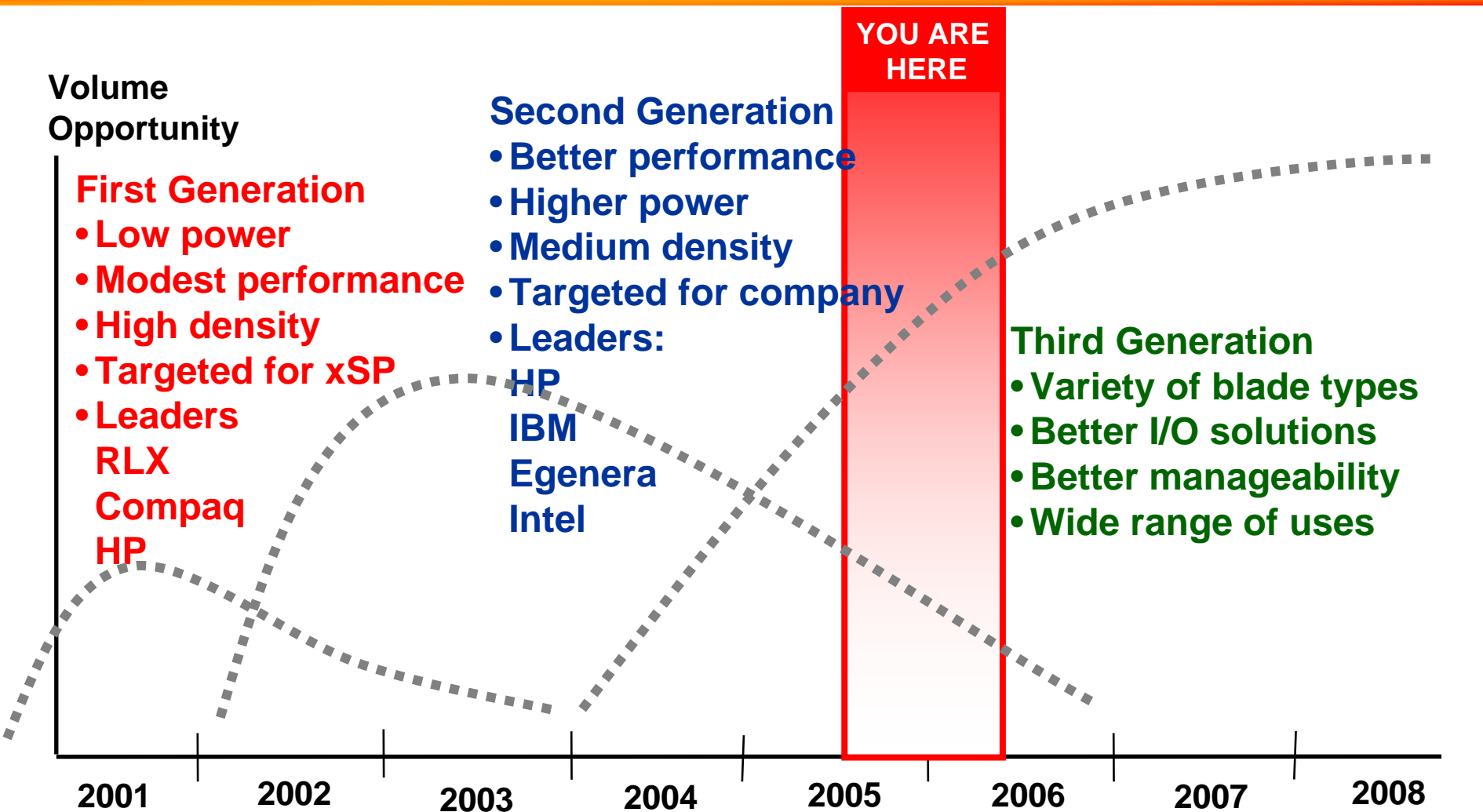
All multi-threaded architectures are not equal.

**Bottom line:** You need benchmarks to see the difference.

**Downside: Increased chip parallelism + capacity on demand + software-based virtualisation + Rapid Provisioning Tools = *Risk of software pricing mayhem!***

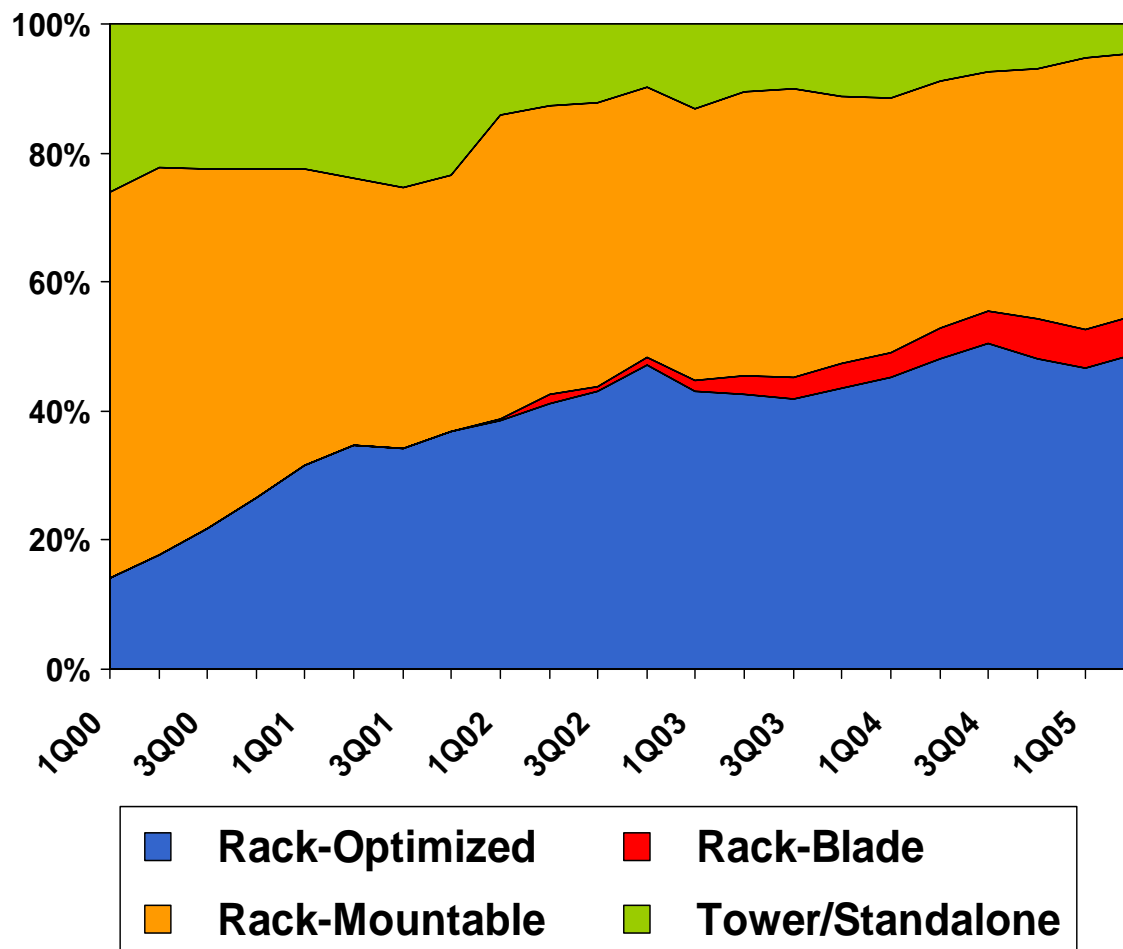


# The Blade Server (R)evolution



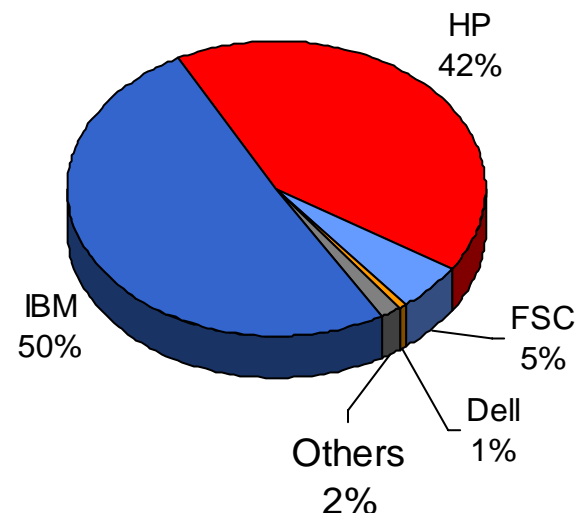
# Blades – Becoming Mainstream in 2006? (EMEA 2Q05)

## SHIPMENTS BY FORM FACTOR

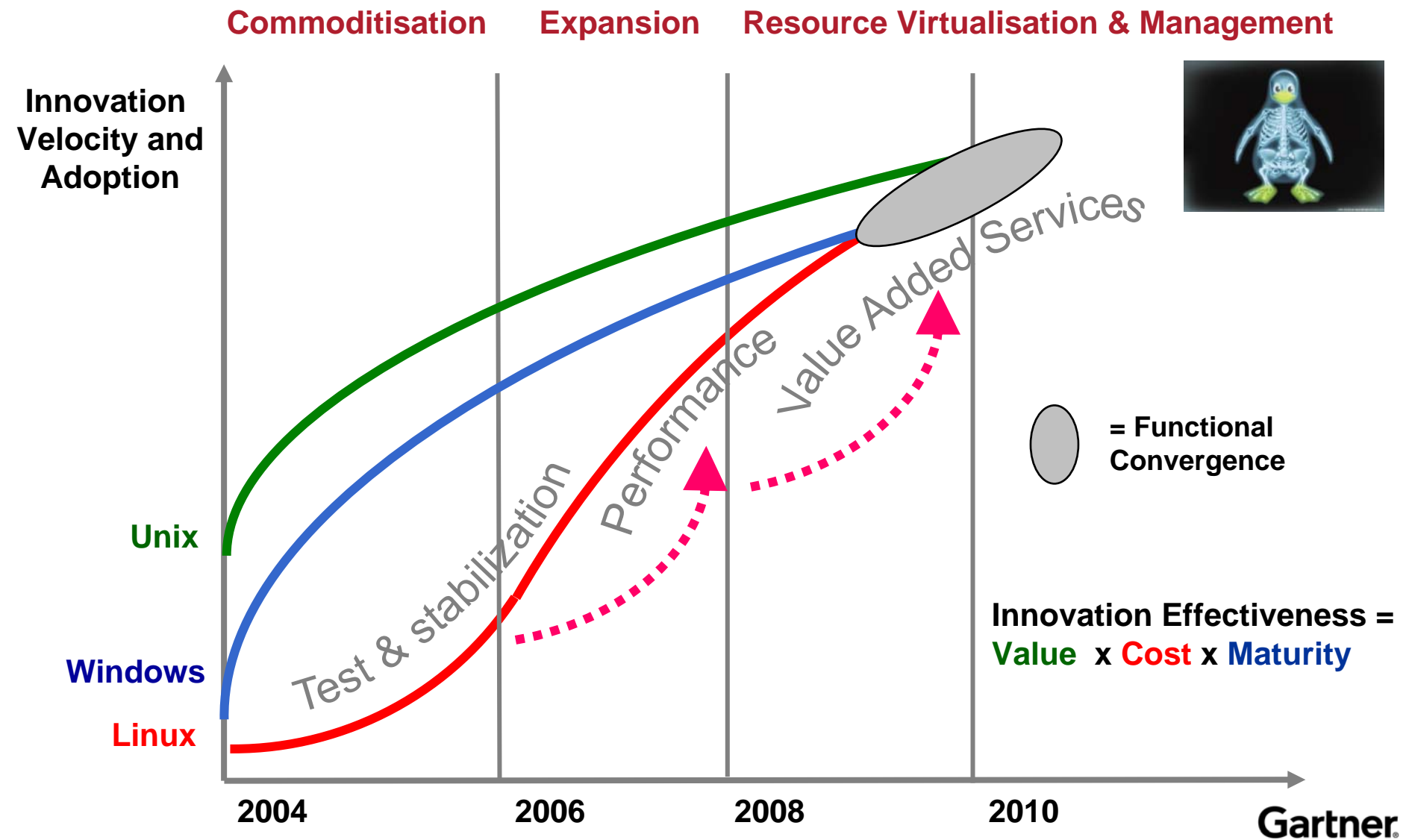


**Blade volumes**  
**2Q05 32,855**  
**2Q04 23,245**  
**Growth = 41%**

## EMEA MARKET SHARE



# Linux Has Become a Magnet for Innovation

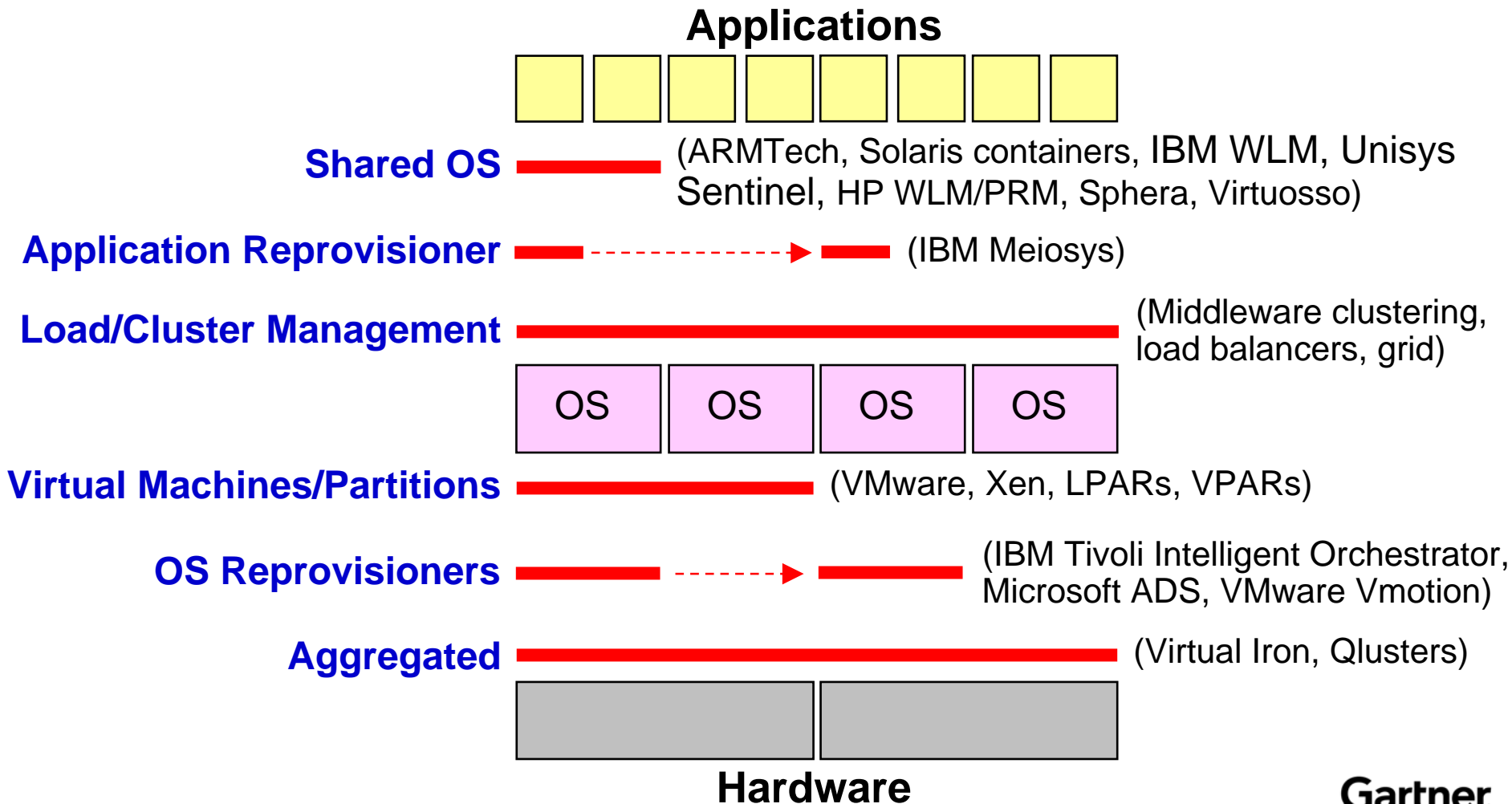


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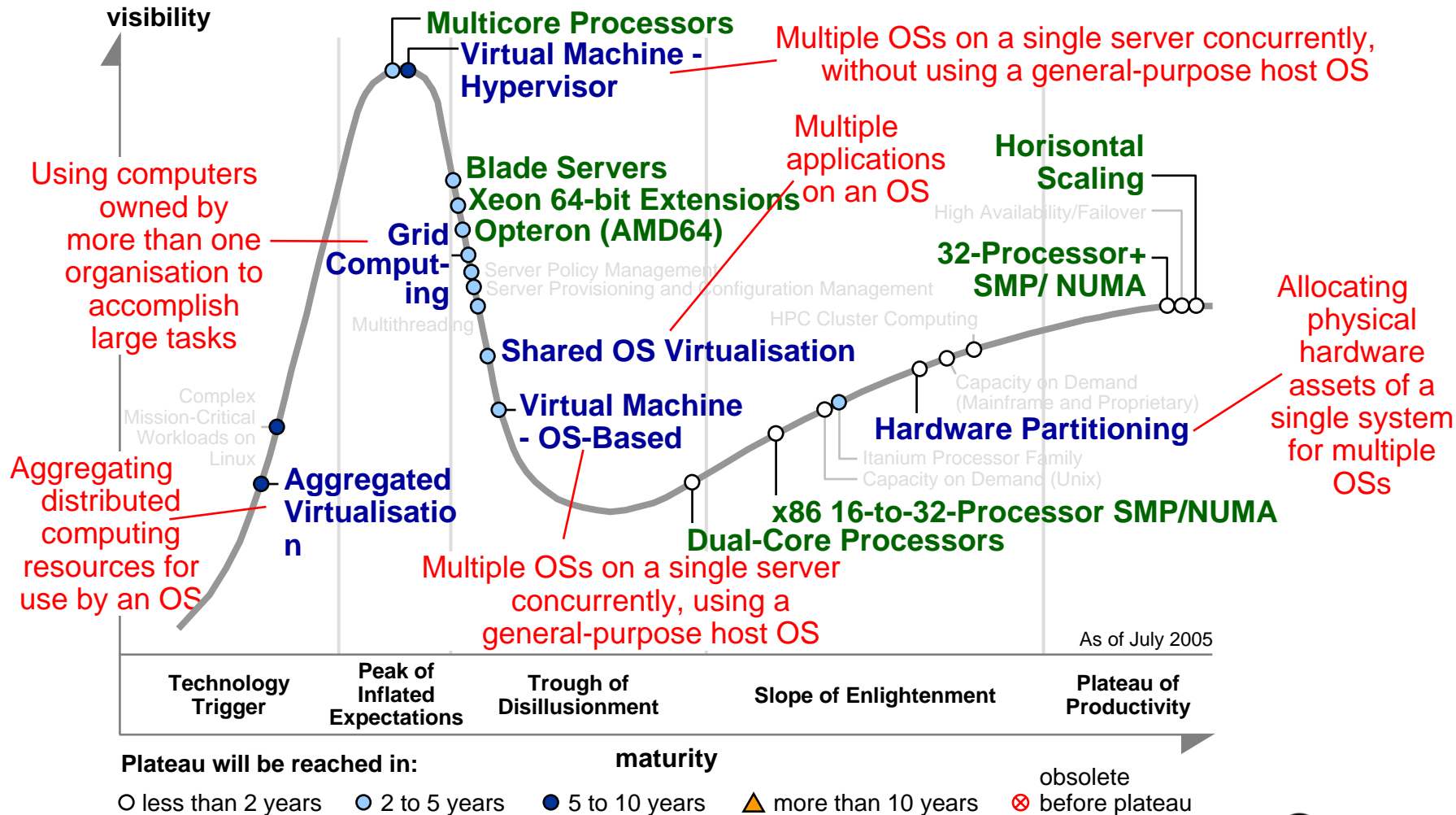
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# Server Virtualisation Will Evolve at Every Level

**IT Virtualisation** is the pooling of IT resources in a way that masks the physical nature and boundaries of those resources from resource users



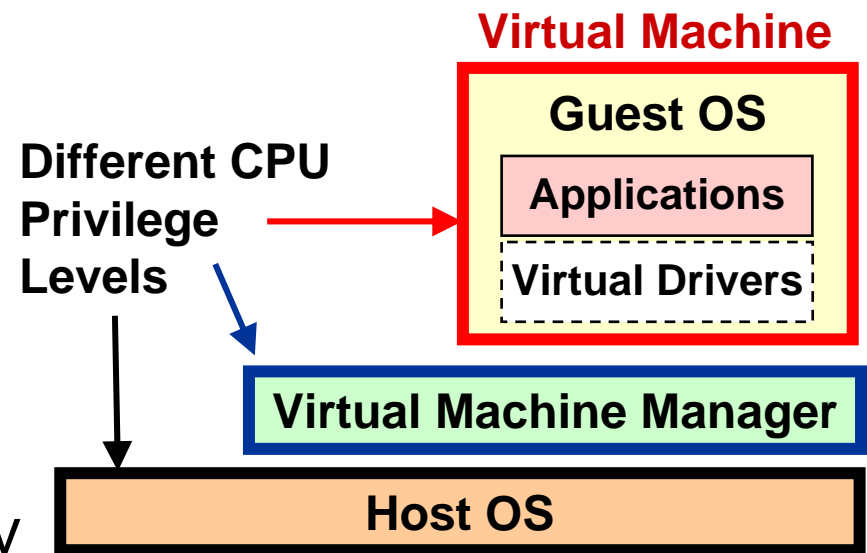
# Server Consolidation & Virtualisation on the Hype Cycle for Server Technologies





# Imminent Hardware Support From Intel and AMD

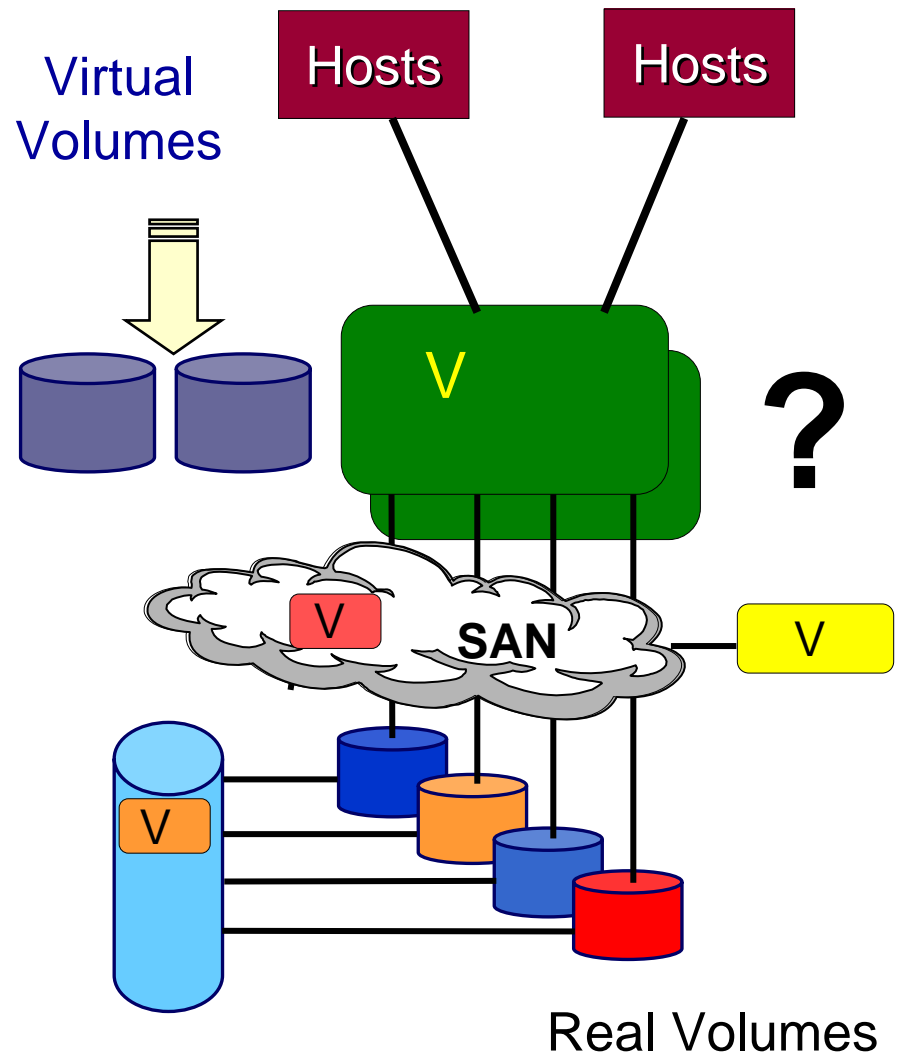
- Intel's Virtualisation Technology (VT) available 2H05; AMD's "Pacifica" coming 1H06
- New privilege levels, hardware partitioning and hardware policy enforcement
- Virtualisation becomes more efficient, more flexible and more reliable
- Requires software support
- VMware, Microsoft, Xen all plan to support the new hardware technology quickly





# Storage Virtualisation, a New Technology Breakthrough?

- Storage Virtualisation is not new.
- Storage Virtualisation is an enabling technique, not a technology.
- Symmetrical virtualisation is just another way to spell “controller,” moving functionality to the network.
- Control unit virtualisation has emerged. Network/ fabric virtualisation will emerge through 2006.



# Storage Virtualisation

## Benefits and Challenges

### Potential benefits of virtualisation

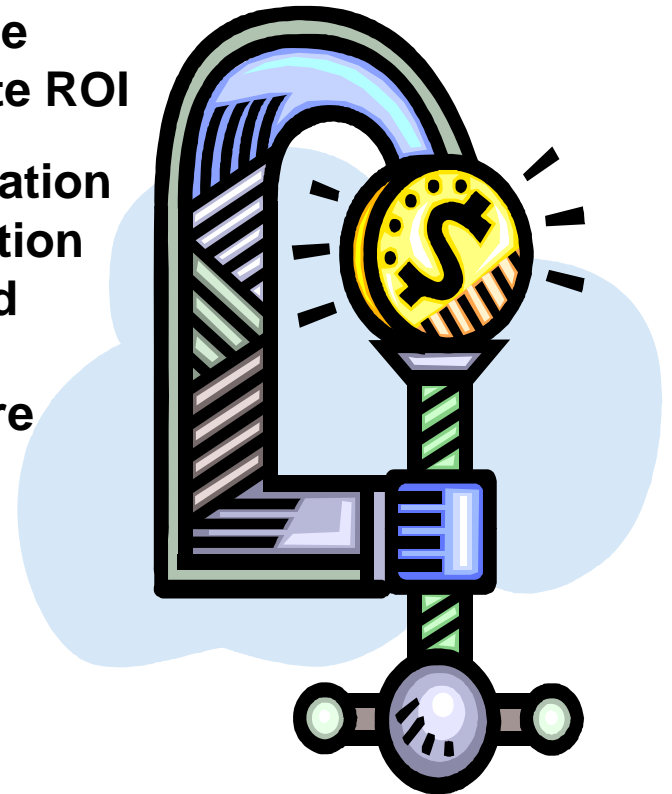
- Address simplification
- Flexibility in building volumes to size and quantity
- Dynamic volume changes
- Optimised performance, cost and availability
- Caching, striping, PiT, heterogeneous RC
- Eliminated boundaries (servers, storage subsystems and vendors)

### Potential challenges

- Scalability
- Manageability (Standards!)
- Reliability
- Complexity

# Return on Server Virtualisation Investment

- **Require Rapid ROI:** Return within 0 to 18 months critical due to commoditising prices
- **Deploy With Hardware:** Hardware refresh is the best time to deploy – usually results in immediate ROI
- **Count on Hardware Savings Only:** Administration savings are minimal – badly managed, virtualisation is another environment to manage, and workload balancing to optimise hardware can cost more; well-managed, virtualisation can reduce hardware serviceability costs; hardware savings can be significant - 50-70% savings possible
- **Disaster Recovery:** Consider virtual machines are a useful tool for disaster recovery (source capture and target systems), and cold restart
- **Chargeback:** Virtual machines introduce the possibility to start shifting the chargeback model to usage-based



# Target the Right Workloads at the Right Servers



- **The best apps are general-purpose, small, possibly peaky applications**
- **Target 40-50% final average utilisation unless workloads are completely static and predictable – hardware is cheaper than administrative effort to balance workload**
- **I/O intensive applications may be troublesome – be cautious about consolidating them**
- **Software licensing usually does not recognise virtual machines – so larger machines might generate larger licensing costs**

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# HP: Build Increasingly OS-Agnostic Management Stack

## 2006 Mission:

- ✓ Build on virtualisation foundation
- ✓ Prove functional & performance superiority over PA-RISC, ready for major migration push in 2006.

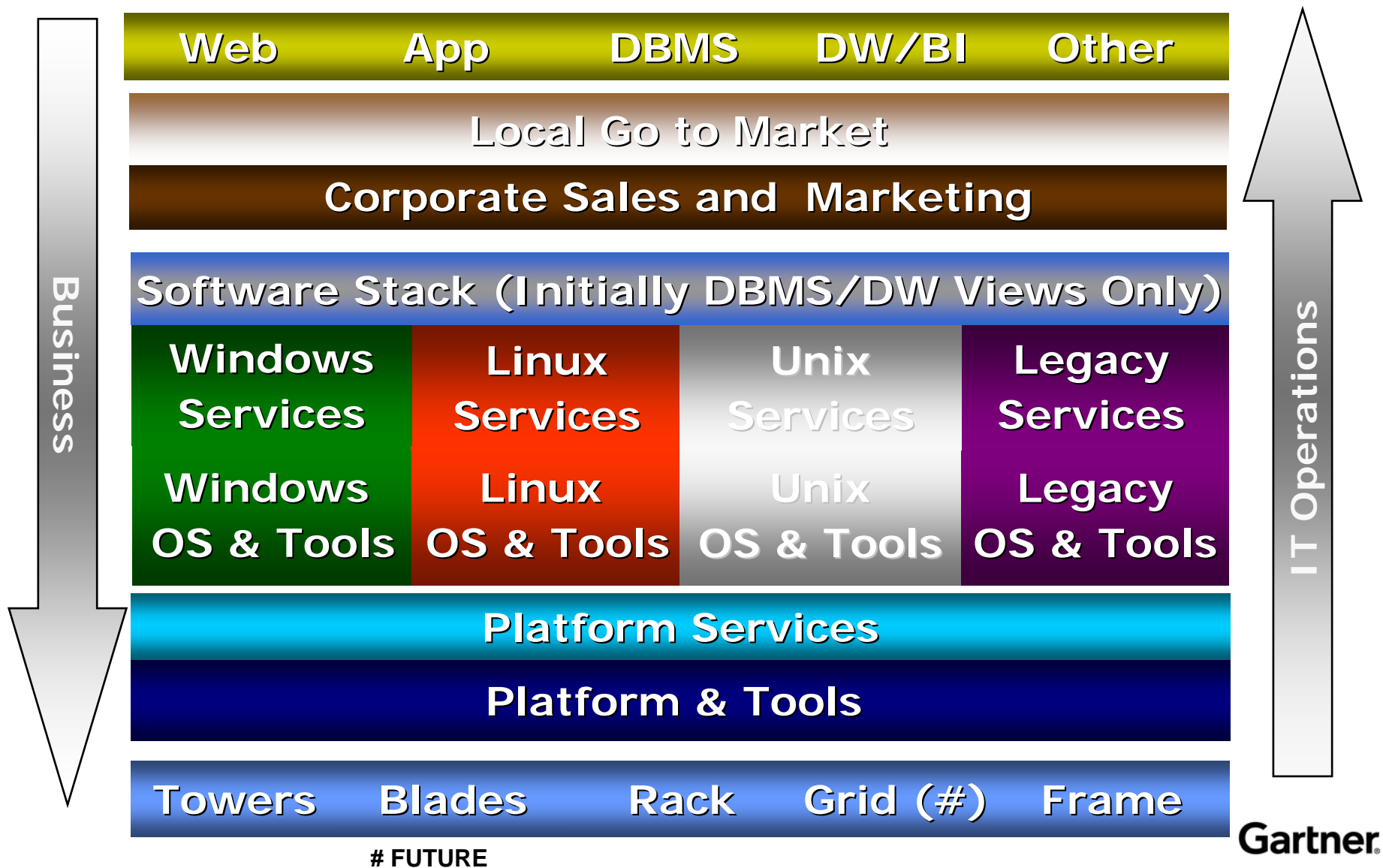
## Market Success Strategies:

- Build volume around [Itanium](#) without impacting x86 revenues.
- Use [Linux](#) in a balanced multi-OS shared resource environment.
- Deliver hybrid blend of HP management, open-source and ISV software [environment](#).
- Build leadership [virtualisation](#) technology.

## Market Realities:

- PA-RISC/Itanium co-hosting will greatly facilitate user migration strategies.
- Itanium transition (like any migration) needs thorough planning, timing & management.
- x64 market growth will increase HP-UX share of overall Itanium market, at least in short term. Growing Linux support will come from Unix migration.
- Core applications & tools already in place, but check for specialist SW availability.

# Introducing the Server Vendor SEM (Scorecard Evaluation Model)





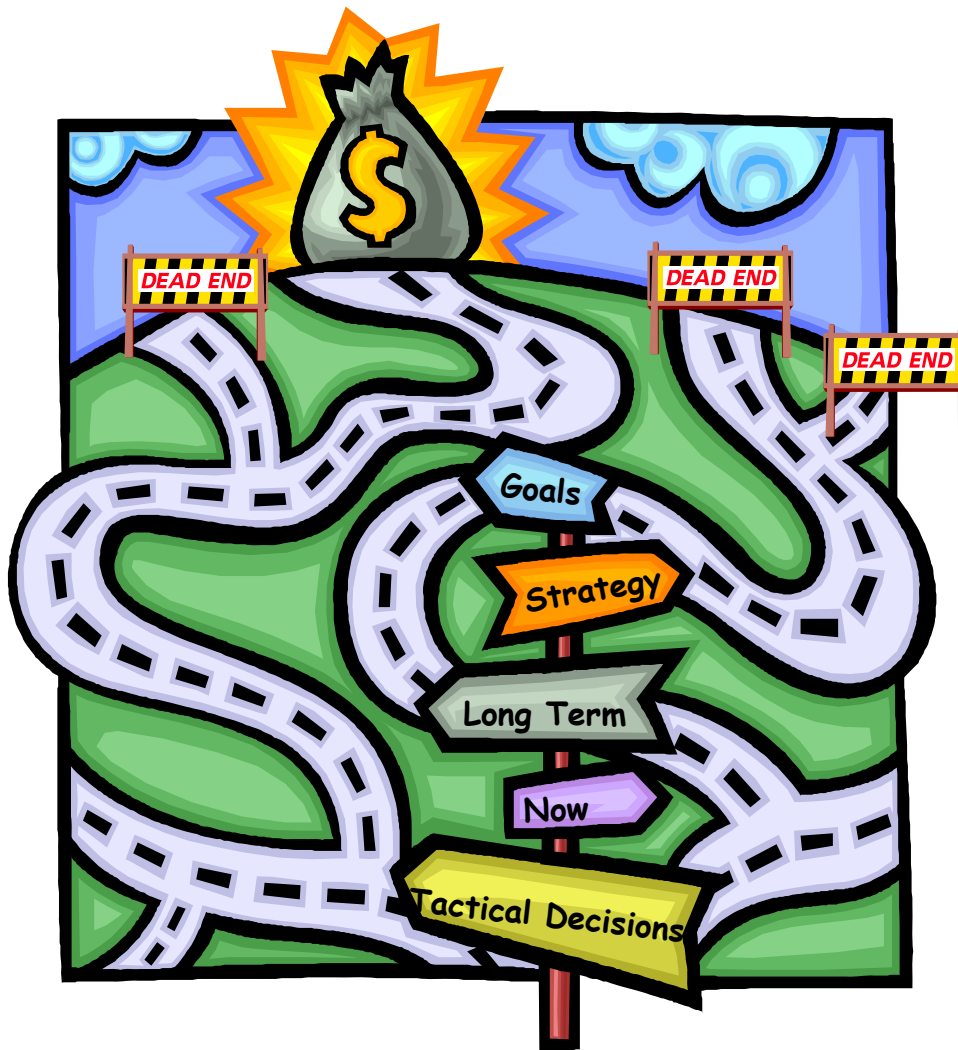
# HP Vendor Rating: **POSITIVE**

## (From **PROMISING** - Updated June 2005)

Initiative	Rating	Initiative	Rating
<b>Corporate Viability</b>		<b>Product/Services</b>	
Strategy	<b>Promising</b>	Proliant	<b>Positive</b>
Financial	<b>Positive</b>	Integrity	<b>Promising</b>
Marketing	<b>Positive</b>	Legacy HP/UX	<b>Promising</b>
Organisation	<b>Promising</b>	& Nonstop	
Branding	<b>Positive</b>	Legacy VMS & MPE/iX	<b><u>Strong Neg.</u></b>
<b>Technology</b>	<b>Positive</b>	Legacy OpenVMS	<b>Caution</b>
<b>Linux</b>	<b>Positive</b>	Storage Systems	<b>Promising</b>
<b>Pricing structure</b>	<b>Positive</b>	Storage Mgmt.	<b>Caution</b>
<b>Product/Services</b>		Managed Services &	<b>Promising</b>
Printers/Imaging	<b><u>Strong Pos.</u></b>	Outsourcing	
Desktop	<b>Promising</b>	Consulting and SI	<b>Promising</b>
Notebook	<b>Promising</b>	Mgmt Software	<b>Promising</b>
Handhelds	<b>Promising</b>	<b>Customer Service/Support</b>	
Digital Entertainment	<b>Caution</b>	Sales/distribution	<b>Promising</b>
		Support/Account Mgmt	<b>Promising</b>

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# What To Start Next Week



- ✓ Intel and AMD-based architectures will increasingly influence server market spending - circa two-thirds by 2008.
- ✓ New technology deployments - like blades and advanced VM technology - should have a short (two-to-three year) return on investment due to steep evolutionary ramps.
- ✓ Hardware ROI of consolidation & virtualisation is obvious – but be cautious of replacing server sprawl with VM sprawl - have a management and automation strategy in place
- ✓ Consider virtualisation strategically - as part of a broader infrastructure evolution leading toward a Real Time Infrastructure (RTI) vision. **Gartner.**

# Virtualising the Data Centre HP Conference

